

SureFil High Density Posterior Restorative (Project 98-56) (09/99)

According to its manufacturer (Dentsply/Caulk), SureFil is a resin composite suitable for use as an amalgam alternative. It is one of several recently-introduced resin composites that are described by their manufacturers as "condensible" or "packable." They purportedly exhibit resistance to condensation because they are relatively highly filled with particles that have been modified in shape or texture.

Dentsply claims that SureFil's packability, carvability, polishability, resistance to slumping, and low polymerization shrinkage are the result of a synergistic linking of the product's filler particles with its urethane-modified Bis-GMA resin. This linking is purportedly made possible because of a technology developed by Dentsply that is called the "Interlocking Particle Technology (IPT)." Beneficial properties also result, to some degree, because SureFil is filled to 82% by weight (65% by volume) with a blend of fumed silica and barium fluoro alumino borosilicate glasses. Average particle size is 0.8 microns. According to Dentsply, SureFil's IPT, in combination with its filler particle morphology and size distribution, is responsible for the product's amalgam-like handling characteristics (e.g., condensibility and carvability).



Dentsply recommends SureFil for restoring Class I and II lesions in the posterior quadrant and for fabricating inlays and onlays. It is available in three non-Vita shades designated A, B, and C and is packaged in individual-dose, light-opaque plastic cups called spills that are attached in strips by shade. SureFil is placed in the cavity preparation after the tooth structure has been etched and treated with Prime & Bond 2.1 which is provided in the kit. According to Dentsply, SureFil can be placed in bulk up to 5 mm and light cured. The product and accessories are packaged in a flip-top cardboard box. All components in the kit (resin composite, etchant, bonding agent) are clearly identified and have expiration dates stamped on them. A plastic, graphics-containing instruction card comes with SureFil.

Manufacturer:

L.D. Caulk
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(800) 788-4110 FAX
www.caulk.com

Suggested Retail Price:

\$210.65 SureFil Restorative Introductory Kit (item number 645000) contains:

- ten blister packs each of shades A,B,C (five 2-spills of 0.28 g, five 3-spills of 0.4 g); total of 30 blister packs
- one 4.5-mL bottle of Prime & Bond 2.1
- one 3-mL syringe of Tooth Conditioner Gel
- plastic applicator handle with disposable brush tips
- plastic-tipped amalgam carrier

Government Price:

\$115.85 SureFil Restorative Introductory Kit (contents and item number as listed above)

ADVANTAGES:

- + Placement procedure is straightforward and simple.
- + More packable than standard resin composites which facilitates achieving acceptable interproximal contacts.
- + Adequate working time; not overly sensitive to ambient light.
- + Supplied with easy-to-use bonding agent (Prime & Bond 2.1)
- + Polishability and overall esthetics were rated highly by evaluators.
- + Is sufficiently radiopaque to ensure easy detection on a radiograph.
- + Is comparable in hardness to several popular resin-based restorative materials (e.g., Prodigy, F2000, Hytac, élan)
- + Provided with a laminated instruction card that uses graphics to depict product use.
- + Expiration dates are provided for all items in kit.
- + Provided with all appropriate Material Safety Data Sheets (MSDS).

DISADVANTAGES:

- Is not adequately polymerized when placed in bulk (i.e., a 5-mm thickness).
- Is not as condensible as amalgam.
- Evaluators did not find the material to be carvable as the manufacturer claims.
- Spill-type packaging leads to waste of material.
- Not available in unit-dose capsules.
- Non-Vita shade designations (A, B, C) were not useful in selecting shade.
- Is from 8% to 100% more expensive (per gram of refill material) than several popular resin composites.

SUMMARY AND CONCLUSIONS:

SureFil was judged by the majority of our clinical evaluators to be easy to place and it produced esthetic restorations. Although the material is more viscous and can be packed more easily than standard resin composites, it is not condensible like amalgam. Therefore, burnishing the matrix band and proper wedging is crucial to achieving a satisfactory interproximal contact when using SureFil. The material is also not carvable as Dentsply claims. Too much material is provided in the spill blister packs which leads to waste. While not the most expensive packable resin composite on the market, SureFil is more expensive than popular resin composites such as Herculite XRV, Prodigy, Spectrum TPH, and Z100. It is very important to note that DIS testing did not confirm Dentsply's claim that SureFil can be adequately light activated when placed in a 5-mm thickness. As a result, it should not be placed in a thickness greater than 2 mm before being light activated. In summary, although SureFil is somewhat easier to place, the current literature and this evaluation indicate it offers no important advantages over traditional resin composites and is more expensive. **SureFil** is rated **Marginal** for use by the federal dental services.